Correspondence


To the Editor:

We congratulate Scherrer et al for their interesting work describing pulmonary, cardiac, and vascular dysfunction in children conceived through the ever-more-prevalent assisted reproductive technology. Surely this work sheds light on the potential for lasting cardiovascular effects of conception and gestation. We also value the use of arteriosclerotic markers in children, and would like to highlight some important considerations that would help in interpreting these intriguing findings.

It is clear that careful planning and laborious effort went into the extensive cardiovascular assessment, as well as the thorough statistical analysis that incorporated a number of maternal and child covariates. However, it would have also been beneficial to consider the children’s current hormonal status or pubertal maturation. Previously it has been demonstrated that systemic compliance, as well as central and peripheral arterial stiffness, are altered markedly between 10 to 16 years of age. Specifically, it appears that prepubertal females have lower systemic compliance and higher central and peripheral artery stiffness (pulse wave velocity) compared with prepubertal boys. After puberty, however, and likely as a result of the vascular effects of gender-specific sex hormones, this difference is lost for both systemic compliance and central artery stiffness but reversed for peripheral artery stiffness. This limitation to the current study could have been partially mitigated through the use of a maturational index such as Tanner staging or age from peak height velocity. Considering that there was ≈11% fewer females and that age was lower in the assisted reproductive technology group (P=0.06), there may be a meaningful interaction between maturation and sex regarding the vascular findings of this study. An older group of peripubescent children with more females, as seen in the control group of this study, would be expected to have improved vascular markers as a result of a greater influence of endogenous feminizing hormones. Because estrogen influences arteries through both endothelium-dependent and -independent mechanisms, this may partially explain the functional (ie, flow-mediated dilatation) and structural (ie, pulse wave velocity) findings of the current study. This study limitation may be mitigated further if body composition was considered, because a more rapid onset of puberty has been reported in overweight girls.

This study, for the first time, suggests cardiovascular detriments are probable in children conceived through assisted reproductive technology. Although this work is very interesting, and sheds light on a population surely to garner more attention in the coming years, measurement and covariation of pubertal maturation would greatly enhance the interpretation and validity of these findings.

Disclosures

None.

Aaron A. Phillips, MSc
Cardiovascular Physiology and Rehabilitation Laboratory
University of British Columbia
Vancouver, British Columbia, Canada

Deborah D. O’Leary, PhD
Department of Community Health Sciences
Brock University
St Catharines, Ontario, Canada

References

Letter by Phillips and O'Leary Regarding Article, "Systemic and Pulmonary Vascular Dysfunction in Children Conceived by Assisted Reproductive Technologies"
Aaron A. Phillips and Deborah D. O'Leary

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